

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Docket No: Q79547

Norihito HATAKEDA

Application. No.: 10/769,751

Group Art Unit: 2628

Confirmation No.: 8924

Examiner: Almis R. Jankus

Filed: February 3, 2004

For: IMAGE GENERATING APPARATUS, IMAGE GENERATING METHOD, AND PROGRAM

AMENDMENT UNDER 37 C.F.R. § 1.111

MAIL STOP AMENDMENT

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

In response to the Office Action dated August 1, 2007, please amend the above-identified Application as follows on the accompanying pages.

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AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (previously presented): An image generating apparatus, comprising:
display image generating means for generating display image data to be displayed on a screen based on information on at least one three-dimensional object disposed in a three-dimensional space and information on a viewpoint position;

image area identification data storage means for storing image area identification data that, of said display image data, specifically identifies an image area corresponding to said three-dimensional object; and

image processing means for applying image defocusing processing at least locally to said display image data that represents an edge of said three-dimensional object, based on said image area identification data.

2. (currently amended): An image generating apparatus, comprising:
display image generating means for generating display image data to be displayed on a screen based on information on at least one three-dimensional object disposed in a three-dimensional space and information on a viewpoint position;

elemental image generating means for generating elemental image data that represents at least one figure which represents an irregularity on an edge of said 3D object and is applied to a surface forming said three-dimensional object, and that draws at least one elemental image in an image area corresponding to said surface forming said three-dimensional object;

synthesizing means for generating synthesized display image data to be displayed on said screen by synthesizing said generated elemental image data with the display image data generated based on said information on the three-dimensional object; and

image processing means for applying image defocusing processing at least locally to said synthesized display image data that represents an edge of said three-dimensional object.

3. (original): The image generating apparatus according to claim 2, further including:

storage means for storing original texture map image data to be applied to said surface forming said three-dimensional object, wherein

said display image generating means generates the display image data, when generating the display image data, by applying the original texture map image data stored in said storage means to the surface forming the three-dimensional object.

4. (previously presented): An image generating apparatus, comprising:
display image generating means for generating display image data to be displayed on a screen based on information on at least one three-dimensional object disposed in a three-dimensional space and information on a viewpoint position;

elemental image generating means for generating elemental image data that is applied to a surface forming said three-dimensional object and that draws at least one elemental image in an image area corresponding to said surface forming said three-dimensional object;

synthesizing means for generating synthesized display image data to be displayed on said screen by synthesizing said generated elemental image data with the display image data generated based on said information on the three-dimensional object;

image processing means for applying image defocusing processing at least locally to said synthesized display image data, and

storage means for storing original texture map image data to be applied to said surface forming said three-dimensional object, wherein

said display image generating means generates the display image data, when generating the display image data, by applying the original texture map image data stored in said storage means to the surface forming the three-dimensional object, and

wherein said original texture map image data includes synthesizing area identification information for identifying an area, on which image data different from the original texture image can be synthesized, and

said elemental image generating means determines a drawing position of the elemental image based on the synthesizing area identification information of said original texture map image data.

5. (previously presented): An image generating apparatus, comprising:

display image generating means for generating display image data to be displayed on a screen based on information on at least one three-dimensional object disposed in a three-dimensional space and information on a viewpoint position;

elemental image generating means for generating elemental image data that is applied to a surface forming said three-dimensional object and that draws at least one elemental image in an image area corresponding to said surface forming said three-dimensional object;

synthesizing means for generating synthesized display image data to be displayed on said screen by synthesizing said generated elemental image data with the display image data generated based on said information on the three-dimensional object;

image processing means for applying image defocusing processing at least locally to said synthesized display image data, and

storage means for storing original texture map image data to be applied to said surface forming said three-dimensional object, wherein

said display image generating means generates the display image data, when generating the display image data, by applying the original texture map image data stored in said storage means to the surface forming the three-dimensional object, and,

wherein said elemental image data includes synthesizing area identification information that identifies an area, in which image data different from the elemental image can be synthesized,

said image processing means determines at least one portion, to which the image defocusing processing is applied, based on the synthesizing area identification information included in each of said elemental image data and said original texture map image data, and applies the image defocusing processing to said portion determined.

6. (previously presented): The image generating apparatus according to claim 2, wherein

said elemental image data or said portion, to which image defocusing processing is applied, is changed with time.

7. (previously presented): An image generating method using a computer, comprising:

a display image generating step for generating a display image to be displayed on a screen based on information on at least one three-dimensional object disposed in a three-dimensional space and information on a viewpoint position;

an image area identification data storage step for storing image area identification data that, of said display image, specifically identifies an image area corresponding to said three-dimensional object; and

an image processing step for applying image defocusing processing at least locally to an edge of said three-dimensional object in said display image based on said image area identification data.

8. (previously presented): A computer-readable medium for use in a computer and storing a program for executing:

a display image generating step for generating a display image to be displayed on a screen based on information on at least one three-dimensional object disposed in a three-dimensional space and information on a viewpoint position;

an image area identification data storage step for storing image area identification data that, of said display image, specifically identifies an image area corresponding to said three-dimensional object; and

an image processing step for applying image defocusing processing at least locally to an edge of said three-dimensional object in said display image based on said image area identification data.

9. (original): Display image data to be generated in accordance with the image generating method as claimed in claim 7.

10. (previously presented): The image generating apparatus according to claim 4, wherein

said elemental image data includes synthesizing area identification information that identifies an area, in which image data different from the elemental image can be synthesized,

said image processing means determines at least one portion, to which the image defocusing processing is applied, based on the synthesizing area identification information included in each of said elemental image data and said original texture map image data, and applies the image defocusing processing to said portion determined.

11. (previously presented): The image generating apparatus according to claim 3, wherein

said elemental image data or said portion, to which image defocusing processing is applied, is changed with time.

12. (previously presented): The image generating apparatus according to claim 4, wherein

said elemental image data or said portion, to which image defocusing processing is applied, is changed with time.

13. (previously presented): The image generating apparatus according to claim 5, wherein

said elemental image data or said portion, to which image defocusing processing is applied, is changed with time.

14. (currently amended): An image generating method using a computer comprising:
generating display image data to be displayed on a screen based on information on at least one three-dimensional object disposed in a three-dimensional space and information on a viewpoint position;

generating elemental image data that represents at least one figure which represents an irregularity on an edge of said 3D object and is applied to a surface forming said three-dimensional object, and that draws at least one elemental image in an image area corresponding to said surface forming said three-dimensional object;

generating synthesized display image data to be displayed on said screen by synthesizing said generated elemental image data with the display image data generated based on said information on the three-dimensional object; and

applying image defocusing processing at least locally to said synthesized display image data that represents an edge of said three-dimensional object.

15. (currently amended): A computer-readable medium for use in a computer and storing a program for executing:

a step of generating display image data to be displayed on a screen based on information on at least one three-dimensional object disposed in a three-dimensional space and information on a viewpoint position;

a step of generating elemental image data that represents at least one figure which represents an irregularity on an edge of said 3D object and is applied to a surface forming said three-dimensional object, and that draws at least one elemental image in an image area corresponding to said surface forming said three-dimensional object;

a step of generating synthesized display image data to be displayed on said screen by synthesizing said generated elemental image data with the display image data generated based on said information on the three-dimensional object; and

a step of applying image defocusing processing at least locally to said synthesized display image data that represents an edge of said three-dimensional object.

REMARKS

Formal Matters

Claims 1-15 are all the claims pending in the present Application.

Applicant thanks the Examiner for initialing the information disclosure statement (IDS) submitted on May 31, 2007.

Claim Rejections Under 35 U.S.C. § 101

Claims 8 and 15 stand rejected under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. Applicant traverses this rejection for at least the following reasons.

The Examiner appears to contend that claims 8 and 15 are directed to non-statutory subject matter, merely because it is possible to transmit a program using a signal prior to recording it on a computer readable medium. The Examiner's rejection is, in this instance, completely without merit.

In the recent case of In re Nuijten, 2007 U.S. App. LEXIS 22426 (Fed. Cir. Sept. 20, 2007), the Federal Circuit clarified the law regarding the statutory classes of invention. The court restated the settled law that "the [claimed] subject matter must fall into at least one category of statutory subject matter," namely, "process, machine, manufacture, or composition of matter. Id. at *14, *15 (citations and quotations omitted). The court clarified, however, that "transitory electrical and electromagnetic signals propagating through some medium, such as wires, air, or a vacuum . . . are not encompassed by any of the four enumerated statutory categories." Id. at *11.

Claim 8 is directed to “a computer readable medium for use in a computer and storing a program for executing” the elements of claim 8. Claim 15 is similarly directed. Neither claim 8 nor claim 15 are directed to a “signal” or a “waveform.” These claims are instead directed to a computer readable medium for use in a computer, which is clearly not a transitory propagating signal. Accordingly, Applicant respectfully requests that the Examiner withdraw this rejection.

Claim Rejections Under 35 U.S.C. § 102

Claims 1-15 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Torborg et al (“Torborg”). This rejection should be traversed for at least the following reasons.

Claim 1

Claim 1 recites “image area identification data storage means for storing image area identification data that, of said display image data, specifically identifies an image area corresponding to said three dimensional object.” The Examiner contends that Torborg teaches this element of claim 1, citing the section of Torborg entitled “Primitive Rendering.”

Although the cited portion of Torborg appears to discuss converting various primitives into triangles for rendering by the polygon object processor, and determining the visibility of the triangle in each chunk during scan conversion, it does not appear to disclose the “image area identification data” required by claim 1. Claim 1 requires that the “image area identification data . . . specifically identifies an image area corresponding to said three dimensional object.”

Thus, for example, the determination in Torborg as to whether the triangle is visible in the current chunk is different from the requirement of claim 1 that an image area is identified which corresponds to the three dimensional object. This portion of Torborg merely discusses the

determination of whether a portion of a three dimensional object is visible in the current chunk, and therefore, does not disclose “storing image area identification data that . . . identifies an image area” as required by claim 1.

Applicant further emphasizes that the triangle of the current chunk in Torborg is also distinguishable from the “image area” of claim 1, as the triangle is not an image area as understood by one of ordinary skill in the art, but rather, a polygon in three-dimensional space. Moreover, as the cited portion of Torborg fails to disclose the “image area identification data” required by claim 1, it also necessarily fails to disclose that any alleged defocusing processing performed in Torborg is “based on said image area identification data.”

Thus, Torborg fails to teach each and every element of claim 1, and therefore, fails to anticipate claim 1. Accordingly, Applicant respectfully requests that the Examiner withdraw this rejection.

Claims 7 and 8

Since claims 7 and 8 recite features similar to those of claim 1, these claims are also patentable at least for reasons analogous to those presented above with respect to claim 1. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claims 7 and 8.

Claims 2, 3, 6 and 11

Claim 2 is amended to recite “elemental image generating means for generating elemental image data that represents at least one figure which represents an irregularity on an edge of said 3D object.” The cited portions of Torborg fail to teach the application of any figure which could correspond to the figure thus claimed.

Since Torborg fails to disclose each and every element of claim 2, Torborg fails to anticipate independent claim 2. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of independent claim 2 and its dependent claims 3, 6 and 11.

Claims 14 and 15

Since amended claims 14 and 15 recite features similar to those of amended claim 2, these claims are also patentable at least for reasons analogous to those presented above with respect to claim 2. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claims 14 and 15.

Claim 4

Claim 4 requires that “said original texture map image data includes synthesizing area identification information for identifying an area, on which image data different from the original texture image can be synthesized.” The Examiner alleges that this element of claim 4 is taught by Torborg at page 357 in the section entitled “Polygon Object Processor.” This portion of Torborg merely states that polygons are processed in 32 x 32 chunks, and that various values are computed in preparation for rasterization. This portion of Torborg, however, fails to disclose that the texture map image data of Torborg includes any information which identifies an area, such as the claimed “synthesizing area identification information.” Moreover, the cited portions of Torborg fail to disclose anything regarding an area “on which image data different from the original texture image can be synthesized.” Torborg in this regard only appears to discuss conventional texture map data which lacks the additional elements of claim 4 noted above.

Claim 4 further requires that “said elemental image generating means determines a drawing position of the elemental image based on the synthesizing area identification information of said original texture map image data.” The Examiner further cites page 360 of

Torborg with respect to this element of claim 4. Although Torborg does appear to discuss the determination of “texture coordinates for the starting point of the triangle within the chunk,” nowhere does Torborg appear to teach determining “a drawing position of the elemental image based on the synthesizing area identification information of said original texture map image data.” (emphasis added.) As this element of claim 4 clearly distinguishes between “the elemental image” and the “original texture map image data,” the mere determination of a drawing position for a single texture map of a polygon fails to teach this element of claim 4.

Since Torborg fails to teach each and every element of claim 4, Torborg fails to anticipate claim 4. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claim 4.

Claim 5

Claim 5 recites that “said image processing means determines at least one portion, to which the image defocusing processing is applied, based on the synthesizing area identification information included in each of said elemental image data and said original texture map image data.” As noted above with respect to claim 4, Torborg fails to disclose any other image data apart from what appears to correspond to the “original texture map image data” of claim 5. In other words, Torborg fails to disclose any distinct image data which could correspond to the “elemental image data” of claim 5.

Moreover, Torborg fails to disclose determining the portion to which image defocusing processing is applied. Although the Examiner points to the section of Torborg entitled “anti-aliasing” at page 361, this portion of Torborg appears to indicate that anti-aliasing is applied to the entire scene being rendered, rather than to a portion determined as required by claim 5.

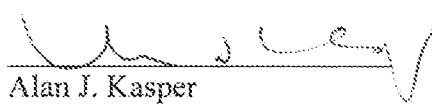
Since Torborg fails to teach each and every element of claim 5, Torborg fails to anticipate claim 5. Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of independent claim 5 and its dependent claim 13.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

This Application is being filed via the USPTO Electronic Filing System (EFS). Applicants herewith petition the Director of the USPTO to extend the time for reply to the above-identified Office Action for an appropriate length of time if necessary. Any fee due under 37 U.S.C. § 1.17(a) is being paid via the USPTO Electronic Filing System (EFS). The USPTO is also directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,


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